WHAT IS CLAIMED IS:

1. A method of forming a traction drive rolling element including a traction surface which has microscopic crowned-projections, the method comprising:

forming a workpiece into a preform having a central axis and a working surface having an arcuate profile in cross section taken along the central axis;

supporting the preform so as to be rotatable about the central axis;

allowing a relative movement between the preform and a grooving tool such that the grooving tool is moved along the arcuate profile of the working surface, simultaneously with rotating the preform about the central axis, to thereby form a plurality of microscopic recesses and microscopic projections alternately arranged in a direction perpendicular to the central axis along the arcuate profile;

pressing a grindstone on the working surface of the preform, the grindstone having a contact surface area of not more than 25 mm^2 in which the grindstone is contacted with the working surface; and

allowing a relative movement between the preform and the grindstone such that the grindstone is moved along the arcuate profile of the working surface simultaneously with rotating the preform about the central axis while keeping pressing the grindstone on the working surface until a height of the microscopic projections becomes not more than 3 μm, to thereby form the traction drive rolling element including the traction surface having the microscopic crowned-projection.

2. The method as claimed in claim 1, wherein the traction drive rolling element is at least one of an input disk and

an output disk cooperating with a power roller to constitute a traction drive transmission.

3. The method as claimed in claim 2, wherein the microscopic recesses and microscopic projections are formed in a predetermined region of the working surface which extends in opposite directions at an angle of ±15 degrees as taken around a center of curvature of the arcuate profile of the working surface of the preform relative to a line extending from the center of curvature of the arcuate profile to a point where the input and output disks are in contact with the power roller to set a rotational speed ratio between the input disk and the output disk at 1.2:1.

4. The method as claimed in claim 2, wherein the microscopic recesses and microscopic projections are formed in a predetermined region of the working surface of the preform for the input disk which extends at an angle ranging from 40 degrees to 70 degrees as taken around a center of curvature of the arcuate profile relative to a line extending perpendicular to the central axis and passing through the center of curvature of the arcuate profile, and the microscopic recesses and microscopic projections are formed in a predetermined region of the working surface of the preform for the output disk which extends at an angle ranging from 55 degrees to 85 degrees as taken around the center of curvature of the arcuate profile relative to a line extending perpendicular to the central axis and passing through the center of curvature of the arcuate profile.

5. The method as claimed in claim 2, wherein a distance of the relative movement between the preform and the grooving

tool is in a range from 100μm to 300 μm per one rotation of the preform.

6. The method as claimed in claim 2, wherein the relative movement between the preform and the grooving tool is made so as to adjust a height of the microscopic projections to a maximum value at a first point where the input and output disks are in contact with the power roller to set a rotational speed ratio between the input disk and the output disk at 1.2:1, and adjust the height thereof to not more than 0.5 μm at second points which are positioned at opposite sides of the first point, and wherein a first line extending through the first point and a second line extending through each of the second points make an angle of 15 degrees around the center of curvature of the arcuate profile.

7. The method as claimed in claim 6, wherein the height of the microscopic projections continuously decreases from the first point and the second point.

8. The method as claimed in claim 6, wherein the height of the microscopic projections is adjusted to not more than 3 μm.

9. The method as claimed in claim 6, wherein the height of the microscopic projections is adjusted to more than 3 μm.

10. The method as claimed in claim 6, wherein the relative movement between the preform and the grooving tool is made so as to move the grooving tool along the arcuate profile of the working surface of the preform.

11. The method as claimed in claim 10, wherein the grooving tool is pivotally moveable about a pivot axis which is offset from the center of curvature of the arcuate profile of the working surface of the preform so as to approach the arcuate profile, the grooving tool having a radius of curvature of a locus of the pivotal movement which is smaller than a radius of curvature of the arcuate profile of the working surface of the preform.

12. The method as claimed in claim 2, wherein the grooving tool has a rounded end having a radius of curvature which ranges from 50 μm to 100 μm.

13. The method as claimed in claim 1, wherein the grindstone is pressed on the working surface of the preform at a force ranging from 50 N to 500 N.

14. The method as claimed in claim 1, wherein the relative movement between the preform and the grindstone is made so as to pivotally move the grindstone along the arcuate profile of the working surface of the preform.

15. The method as claimed in claim 1, wherein the grindstone has at least one protrusion which is formed on an outer periphery of the grindstone and brought into contact with the working surface of the preform.

16. The method as claimed in claim 15, wherein the grindstone has a plurality of protrusions which are formed on an outer periphery of the grindstone and brought into contact with the working surface of the preform.

17. The method as claimed in claim 16, wherein the relative movement between the preform and the grindstone is made so as to pivotally move the grindstone along the arcuate profile of the working surface of the preform, the grindstone having a pivot axis and a pivot angle at which the grindstone is pivotally moveable, the plurality of protrusions including three protrusions arranged in circumferentially spaced relation to each other on the outer periphery of the grindstone, the three protrusions including a middle protrusion and two opposed protrusions which are disposed on both sides of the middle protrusion and have central lines extending across the pivot axis of the grindstone, respectively, the central lines of the two opposed protrusions making an angle therebetween which ranges from an angle smaller by 10 degrees than the pivot angle of the grindstone to the pivot angle of the grindstone.

18. The method as claimed in claim 1, wherein the contact surface area of the grindstone ranges from 4 mm^2 to 16 mm^2.

19. The method as claimed in claim 15, wherein the preform is rotated such that an average circumferential velocity at a contact point where the working surface of the preform and the grindstone are in contact with each other is in a range from 25 m/min to 350 m/min, and the grindstone is pivotally moved at a speed ranging from 5 cycles/min to 100 cycles/min.

20. The method as claimed in claim 15, wherein the protrusion of the grindstone has a compressive elastic modulus of not less than 1 GPa.

21. The method as claimed in claim 1, wherein the grindstone comprises abrasive grains having a particle size of smaller than No.1000.

22. The method as claimed in claim 1, wherein the relative movement between the preform and the grindstone is made so as to, when the grindstone is pivotally moved relative to the working surface, continuously changing the rotational speed of the working surface of the preform such that a circumferential velocity of the working surface at a contact point of the working surface relative to the grindstone is constant.

23. The method as claimed in claim 1, wherein the microscopic projection of the working surface of the preform is removed by a depth of not more than 5 μm from an outermost surface thereof.

24. A traction drive rolling element including a traction surface having microscopic crowned-projections formed by the method as claimed in claim 1, wherein the microscopic crowned-projections have a height of not more than 3 μm.

25. A traction drive rolling element, comprising:

a traction surface having an arcuate profile in cross section taken along a rotation axis; and

microscopic crowned-projections disposed along the arcuate profile, the microscopic crowned-projections having a height of not more than 3 μm and a rounded corner portion which has a radius of curvature ranging from 2 mm to 10 mm.